

NOTICE

U.S. Department of Transportation
Federal Aviation Administration

N 8110.72

3/30/98

Cancellation

Date: 3/30/99

SUBJ: STRUCTURAL DESIGNATED ENGINEERING REPRESENTATIVES (DER)
APPROVALS OF ALTERNATIVE METHODS OF COMPLIANCE TO AIRWORTHINESS
DIRECTIVES (AD) AND AD MANDATED REPAIRS

1. PURPOSE. This notice provides guidance for delegating authority to certain type certificate holder structural Designated Engineering Representatives (DER) to approve alternative methods or configurations for Airworthiness Directives (AD) required repairs and modifications. This delegation can be granted where the Federal Aviation Administration (FAA) determines that the intent of the AD was to restore the airplane found to have damaged structure into compliance with the airplane type certification basis or other identified regulatory airworthiness standard and an alternative means of compliance can be approved based on findings of compliance to known, defined, and published standards. This guidance will increase standardization of DER authorizations that may be granted by various Aircraft Certification Offices (ACO's) to type certificate holder DER's.

2. DISTRIBUTION. This notice is distributed to the Washington headquarters branch level of the Aircraft Certification Service; to the branch level in the Aircraft Certification Directorates; to the Brussels Aircraft Certification Division; to the branch level in all Aircraft Certification Offices and Field Offices; to Office of the Chief Counsel and Assistant Chief Counsels; to the Washington headquarters branch level of the Flight Standards Divisions; and to all Aircraft Evaluation Groups.

3. BACKGROUND.

Section § 44702(d) of Title 49 of the U.S. Code provides for the Administrator to delegate to a private person, or to an employee under the supervision of that person, a "matter related to" the examination, testing, inspection "necessary to issue" an FAA certificate, and a "matter related to" issuing an FAA certificate. The FAA interprets § 44702(d) to include a private person making a finding that design data or a product complies with known, defined, and published standard. The FAA has historically construed "related" and "necessary to issue" broadly. A matter related to an examination, testing, or inspection necessary to issue a certificate includes any finding of compliance or conformity that is or would be necessary for that issuance. For the purpose of issuing a type certificate for a new aircraft design, the FAA may delegate a finding that a part of that new aircraft design complies with an airworthiness standard, such as those in 14 CFR parts 23, 25, 27, 29, 33, and 35. In addition, the FAA may delegate a

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finding that same part of the design, if repaired properly, still complies with the standard; this would, for example, enable the FAA to confirm that the airworthiness certificate for the repaired aircraft continues to be effective. However, a private person may not, as a matter of law, exercise the FAA's discretion; e.g., an equivalent safety "finding" by a private person has no legal significance. Because approvals of alternative methods of compliance (AMOC's) for AD's frequently involve discretionary determinations of acceptability, the FAA historically has not authorized DER's to approve AMOC's.

a. A number of initiatives have been undertaken in order to ensure the continued structural integrity of older airplanes. Many of these initiatives have required extensive structural modifications and repairs which have resulted in a substantial increase in the number of Alternative Method of Compliance (AMOC) requests for structural AD's and a corresponding increased workload at the cognizant ACO. The difference between these AMOC's and the mandated instructions have been relatively minor.

b. To respond to the growing number of AMOC requests without compromising safety and customer satisfaction, ACO's in conjunction with the type certificate holder's DER's have developed various processes for review and approval of AMOC requests. Although those processes have been working rather well, they are designed to address those relatively minor deviations and are not sufficient to respond to an ever increasing number of AMOC requests.

c. An FAA/Industry Working Group (hereafter referred to as the AMOC team) was formed to review existing processes and find ways to improve them. The AMOC team's objectives were as follows:

- (a) Improve the timeliness of issuance of AMOC approvals.
- (b) Maintain the same level of safety under the existing system.
- (c) Reduce the need for AMOC while maintaining legal enforceability of the AD's.
- (d) Standardize the process for issuing AMOC's throughout the FAA.

(e) Accomplish the foregoing in a cost effective manner for industry, and without increasing the need for FAA resources.

d. The AMOC team has completed the assigned tasks and has developed a series of recommendations, which if implemented will satisfy the above objectives. This notice describes one of the recommendations of the AMOC team.

e. Based on a review of AMOC approvals and on information provided by type certificate holders and operators, the team concluded that deviations from structural repair/modification AD's create the most problems for the operators and represent the largest AMOC workload that normally does not involve discretionary determinations of acceptability. The team concluded that the FAA should authorize type certificate holder DER's approval authority for AMOC's to structural repair and modification AD's under certain circumstances. Extending this authority would significantly reduce the number of AMOC requests submitted to the ACO's for approval. Operators would have the option of

applying to the ACO or to the TCH for AMOC approval. Should this program be successful, the team recommended that the FAA consider extending approval authority to type certificate holder DER's in other areas, such as systems and propulsion.

f. This notice provides guidance for delegating authority to type certificate holder DER's to approve engineering data for alternative methods or configurations for AD required repairs and modifications of individual airplanes. It also provides guidance for delegating authority to DER's to approve certain repairs mandated by AD where no previously ACO approved repair exists. This delegation can be granted when the FAA determines that the intent of the AD was to restore the airplane, found to have damaged structure, into compliance with the airplane type certification basis or other defined airworthiness standard. Implementation guidelines for a more comprehensive type certificate holder DER oversight and monitoring system necessitated by expanded type certificate holder delegation are included. This guidance will enable the standardization of DER authorizations for approval of AMOC's for AD's that may be granted by various ACO's.

g. When the standards required by an AD are well defined, it is possible to delegate approval of any repair (interim or permanent) that may have arisen in conjunction with showing compliance to that AD. If the intent of an AD is to bring the level of safety to that of the type certification basis of the airplane, or other defined standards, then delegation is feasible. Type certificate holder DER's can be delegated to approve temporary or interim repairs that are the subject of an AD if the standards required by the AD are well defined and the temporary repairs are fully substantiated. The Limitations section of this notice contains guidelines for the delegation of approval of AD related temporary or interim repairs.

4. IMPLEMENTATION PROCEDURES. The AMOC delegation implementation process includes determination of applicable ADs, and notification of the DER and the type certificate holder of the authority in writing.

a. Determination of Applicable AD's: The ACO should determine which existing structural AD's are acceptable for delegation of alternative methods or configurations for required repairs and modifications. Only structural AD's that were initiated by the delegating ACO can be considered. Operator and manufacturer inputs should be considered with priority placed on those AD's which have resulted in the most AMOC requests. The list of AD's may be revised as necessary to include other AD's or to remove AD's, at the ACO's discretion.

b. Notification of the DER: The authorization and specific delegation process for type certificate holder DER's to approve alternative methods or configurations for AD required repairs and modifications should be in a letter from the cognizant ACO manager to each type certificate holder DER determined to be qualified to make such a finding. The letter to the type certificate holder DER's should include or specify the following:

(1) A listing of those AD's that the FAA has determined that the DER is authorized to make findings (i.e. those AD's that the ACO has determined were intended to restore the airplane into compliance with the airplane type certification basis or other defined airworthiness standards).

(2) A statement that the DER is authorized to make these findings for specified models of airplanes for future AD's which contain a statement allowing type certificate holder DER's approval of certain AMOC's.

(3) An identification of the standards to be applied for the DER to find compliance and the methods for showing compliance that would be acceptable to the FAA. The standard to be applied normally will be the certification basis of the airplane. However, in some cases it will be necessary to define a standard not included in the certification basis, by specific Federal Aviation Regulations (FAR).

(4) A statement that these approvals must be granted in accordance with the process detailed in the letter to the type certificate holder as described below.

c. Notification of the Type Certificate Holder: The authorization for the type certificate holder DER's should be described in a letter from the cognizant ACO manager to the type certificate holder. The letter to the type certificate holder should indicate or specify the following:

(1) A description of how the ACO will administer oversight, monitoring, and any separate reporting requirements associated with this authorization.

(2) A statement that the ACO has the authority to rescind any DER approval that is granted in accordance with this delegation and subsequently found to be inappropriate.

(3) A statement that the authority of individual DER's regarding particular AD's may be limited by subsequent letter to the individual DER.

5. IMPLEMENTATION CONSIDERATIONS:

a. In order to standardize the approval process and to ensure that the DER was properly authorized to make such findings, the following minimum standards should be imposed regardless of which ACO grants the authority. The approvals by the DER's must be executed on FAA Form 8110-3, Statement of Compliance of Aircraft or Aircraft Components with the Federal Aviation Regulations, and must specify the following:

(1) Description of AMOC including the nature of the deviation.

(2) AD number and the specific paragraph for which AMOC approval is granted.

(3) Airplane model, serial number and operator.

(4) A description of the AMOC, including part names and numbers, part serial number if applicable, description of damage, cracks, repair.

(5) That the approval meets the applicable sections of the airplane type certification basis or other defined airworthiness standard for that AD. Specific FAR paragraphs must be listed where applicable.

(6) Reference to the FAA letter (reference and date) that granted this authority to that particular DER.

(7) DER signature and date.

b. For AD's that are issued after the initial identification of eligible AD's and authorized DER's is made, the ACO issuing the AD shall determine whether the intent of the AD is to restore the structure into compliance with the airplane type certification basis or other defined airworthiness standard. If the level of safety intended by the AD does not exceed that defined by the certification basis or other defined airworthiness standard, then delegation of approval of deviations should be granted to authorized Type certificate holder DER's. If a discretionary level of safety is determined to be required by the ACO Manager, then delegation to DERs for that AD is not possible.

c. If delegation is acceptable, a statement similar to the following should be included in the AD:

“Modify/repair the (item) in accordance with the (service document), or in accordance with other data meeting the certification basis of the airplane (or other defined airworthiness standard) approved by a (type certificate product manufacturer) DER who has been authorized by the Manager of the (cognizant ACO) to make such findings.”

d. The ACO should monitor and review such approvals ensuring that they continue to achieve the required level of safety imposed by the AD. The ACO must take appropriate action as necessary to correct any approvals which do not achieve the required level of safety including revocation of the approval and delegation if deemed necessary.

6. DELEGATION OVERSIGHT SYSTEM.

a. Expansion of AMOC approval delegation to the type certificate holder DER's requires an appropriate oversight system. Systems are currently in place to oversee TCH DERs who have been delegated to approve minor deviations to AD mandated repairs and modifications. These oversight systems have been developed at a local level and have been implemented through agreements between the type certificate holders and the ACO's. With the expansion of delegation of AMOC approvals, the existing oversight processes should be re-evaluated. A timely reporting of the AMOC approvals to the ACO is essential to maintain the existing level of safety.

b. For the purposes of standardization, certain key features should be common among all oversight processes. It is clear that prior to any increased delegation, a comprehensive oversight system for monitoring type certificate holder DER's with this authority must be put into place.

c. Some of the essential features of a comprehensive system are as follows:

(1) The DER, through the type certificate holder, shall provide Form 8110-3 to the ACO within 10 working days of the approval or other time agreed by upon the cognizant ACO.

(2) Form 8110-3 will include the information detailed in paragraph 5, Implementation Considerations.

(3) If the operator chooses to utilize this AMOC system:

(a) The operators' maintenance program shall include a system for notification of the Principal Maintenance Inspector (PMI) or cognizant inspector at the local Flight Standards District Office (FSDO) by the operator of these approvals, and

(b) The PMI or cognizant FSDO inspector should ensure that the system established by the operator is adequate to ensure timely notification.

(c) Those operators who do not have a PMI or a cognizant FSDO inspector must request AMOC approvals using the conventional AMOC approval process and cannot utilize a DER AMOC approval process.

d. An oversight system with the above features provides adequate means for the ACO's to monitor the AMOC approval activities by the type certificate holder DER's.

7. LIMITATIONS

a. The ACO that initiated the AD is the only ACO that has the authority to approve AMOC's to that AD and is therefore, the only ACO that can delegate that authority to type certificate holder DER's.

b. This delegation is limited to certain type certificate holder Structural DER's to approve or alternative methods or configurations for AD required repairs and modifications applicable to their products. The following cannot be delegated:

(1) Adjustments to the compliance times specified in AD's.

(2) Discretionary judgments of acceptability.

(3) Alternative inspection methods.

(4) Continued operation with unrepaired damage, such as corrosion or cracks.

c. Only type certificate holder DER's with structural authorization shown in FAA Order 8110.37B, Designated Engineering Representatives (DER) Guidance handbook, Appendix 2., Figure 1., Chart A are eligible for this delegation authority, since only approval of alternative structural repairs and modifications are being delegated.

d. The delegation must be only for the defined deviations to AD's for repairs and/or modifications to a single aircraft. Approvals of the same AD deviation for multiple airplanes shall not be accomplished by a type certificate holder DER. Requests for an Alternative Method of compliance to an AD for multiple aircraft must be submitted to the cognizant ACO Manager.

e. When approval of AD related temporary repairs are delegated to type certificate holders' DER's, the following additional guidelines should be followed. These guidelines define the regulatory standard for the temporary repair as the certification basis of the aircraft, which is well defined. This allows the DER's to find compliance to the applicable rules. There are situations where a temporary repair may not meet these guidelines, in which case ACO involvement is necessary.

(1) The temporary repair must meet the certification basis of the aircraft.

(2) The durability of the most critical detail of the temporary repair will be at least twice the structural maintenance period and not less than 18 months (based on projected aircraft utilization).

(3) Temporary repair would be replaced by a permanent repair (or terminating action in the case of an AMOC) by the next structural maintenance check not to exceed 24 months. Further, the temporary repair must be designed such that its inspection threshold is greater than its replacement period. In other words, there should not be a need for inspection of the temporary repair while it remains installed.

(4) Through the type certificate holder, the DER who authorizes such temporary repair would be required to:

(a) Notify the airline of the terms of the life limited DER approved temporary repair for the particular AD. The notification would include a copy of the Form 8110-3 indicating DER approval and stating that the approval is time limited and will have to be removed on or before a specific date (or flight cycle limit, time limit etc.).

(b) Notify the cognizant ACO within 72 hours of such an approval or other time agreed upon by the cognizant ACO.

(c) Keep all records (telex's, stress and life analyses, letters etc.) for a period of time consistent with normal continuing airworthiness record keeping requirements, not less than one year after the removal of said temporary repair from the aircraft.

(d) Have available the necessary paper work to support any audits that the cognizant ACO deems necessary to oversee the system.

(e) Follow other ACO/AEG/PMI notification requirements as defined in the delegation oversight system.

f. The delegating ACO may rescind any AMOC approval granted by a type certificate holder DER; however, this should be done only after consultation with the operator of the affected airplane and in consideration of the operator's needs.

8. REVOCATION OF APPROVAL/TERMINATION OF AUTHORIZATION. The ACO should monitor and review such approvals ensuring that they continue to achieve the required level of safety imposed by the AD. The ACO must take appropriate action as necessary to correct any approvals which do not achieve the required level of safety including revocation of the approval and delegation if deemed necessary. This delegation may be revoked at any time for any reason the ACO manager determines is appropriate.

[ORIGINAL S I G N E D BY]

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